UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,387	04/09/2004	Scok Jin Han	08831.0064	1597

42304 7590 07/02/2007

CLAIRVOYANTE, INC.
874 GRAVENSTEIN HIGHWAY SOUTH, SUITE 14
SEBASTOPOL, CA 95472

EXAMINER	
CHOW, YUK	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
07/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/821,387	HAN ET AL.	
	Examiner	Art Unit	
	Yuk C. Chow	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on Apr. 9, 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 12/11/2006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first clock rate" and "second clock rate" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Figure 3 and figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected

drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 12 recites the limitation "subpixel rendering input image data that is input asynchronously" in line 5, and "output subpixel...in a format that at a second clock rate..." in line 6. It is not clear that how to make or use of clocks in this asynchronous system. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5-10 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Park (US Patent 6,160,535).

As to claim 1, Park discloses a method of subpixel rendering (Fig. 4(1)) input image data (Fig. 4(Rn, Gn, Bn)) onto a display panel (Fig. 4(4)), said panel substantially

comprising a repeating grouping (Fig. 3A(P)) of a plurality of primary colored subpixels (pixel regions, Col. 4 lines 42-55), wherein said input image data has a different number of subpixel data sets for each image frame (see Fig. 6, Rn has different number of data sets than R'n in one frame) than said display panel (also see Col. 3 lines 13-37), the steps of said method comprising: subpixel rendering input image data (Fig. 4(Rn, Gn, Bn)) that is input at a first clock rate (Fig. 4(LINE)); outputting subpixel rendered data (Fig. 4(Rn', Gn', Bn')) to said display panel at a second clock rate (Fig. 4(CLK)) wherein dummy data (Fig. 4(D)) is inserted into the output data (Also see Col. 5 line 48-Col. 7 line 9).

As to claim 2, Park discloses a method of claim 1 wherein said subpixel repeating group (Fig. 3A(P)) further comprises at least one column in which more than one color primary comprises said column (See Fig. 6, R'n contains Dummy data D, therefore there will be more than one color in that column).

As to claim 3, Park discloses a method of claim 1 wherein said first clock rate and said second clock rate are the same (see Fig. 6, Rn and R'n have same line period, indicate that their clock rates are the same).

As to claim 5, Park discloses a method of claim 1 wherein said input image data comprises more subpixel data sets for each image frame than said number of subpixel data set for each image frame for rendering on said display panel (See Fig. 6 R'n has more data comparing to Rn due to inserted dummy data).

As to claim 6, Park discloses a method of claim 1 wherein said method further comprises the step of outputting a signal (Fig. 4(CNT) indicating valid (Fig. 4(OE)) output data to the display controller (Fig. 4(3)).

As to claim 7, Park discloses a method of subpixel rendering (Fig. 4(1)) input image data (Fig. 4(Rn, Gn, Bn)) onto a display panel, said panel substantially comprising a repeating grouping (Fig. 3A(P)) of a plurality of primary colored subpixels (pixel regions Col. 4 lines 42-55), wherein said input image data has a different number of subpixel data sets for each image frame (see Fig. 6, Rn has different number of data sets than R'n in one frame) than said display panel, (also see Col. 3 lines 13-37) the steps of said method comprising: subpixel rendering input image data (Fig. 4(Rn, Gn, Bn)) that is input at a first clock rate (Fig. 4(LINE)); outputting subpixel rendered data to said display panel at a second clock rate (Fig. 4(CLK)) wherein the output image data is buffered (Fig. 4(34), also see Col. 6 lines 47-60).

As to claim 8, Park discloses a method of claim 7 wherein said subpixel repeating group further comprises at least one column in which more than one color primary comprises said column (See Fig. 6, R'n contains Dummy data D, therefore there will be more than one color in that column).

As to claim 9, Park discloses a method of claim 6 wherein said output image data sent to the display controller does not comprise dummy image data (Fig. 6, G'n and B'n does not contain dummy data).

As to claim 10, Park discloses a method of claim 6 wherein said first clock rate and said second clock rate are the same (see Fig. 6, Rn and R'n has same line period, indicates that their clock rates are the same).

As to claim 14, Park discloses a system (Fig. 4) for rendering input image data in a first colored subpixel data format (Fig, 6(Rn)) onto a display panel in a second colored subpixel data format (Fig. 6(R'n)), said system comprising: a input means (Fig. 4(LINE)) for accepting input image data (Fig. 4(Rn,Gn,Bn)) in said first colored subpixel data format; a subpixel rendering engine (Fig. 4(1)) for remapping the input image data into said second colored subpixel data format; a channel formatter (data transmission paths, Col. 6 line 61-Col. 7 line 9) for effectively ordering the second colored subpixel data format; and a means for outputting (Fig. 4(S1-Sd)) the data formatted by said channel formatter to said display (see Col. 6 line 47 –Col. 7 line 9).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 4, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent 6,160,535) in view of Furuhashi et al (US Patent 6,340,970 B1).

As to claim 4 and 11, Park discloses a method of claim 1 and 6 respectively above.

However, Park does not teach that first clock rate and second clock rate are different.

Furuhashi teaches a LCD control device using different clocks (Fig. 3, DOT CLOCK and ½ FREQUENCY DOT CLOCK).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate two different clocks as in Furuhashi's into LCD device of Park's, because this enables the output signal to have a lower speed than input signal, which allows LCD to be driven at varies timing. This is an advantage over single clock system as suggests by Furuhashi (Col. 2 lines 7-26).

As to claim 12, Park discloses a method of subpixel rendering as claim 1 above, except Park's method is synchronous.

Furuhashi discloses a LCD control device allows input image data asynchronously (Col 12 lines 29-33).

As to claim 13, Park discloses a method of claim 12 wherein said subpixel repeating group further comprises at least one column in which more than one color primary comprises said column (See Fig. 6, R'n contains Dummy data D, therefore there will be more than one color in that column).

9. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent 6,160,535) in view of Murdoch et al. (US PGPUB No. US 2004/0263528 A1).

As to claim 15, Park discloses a system of claim 14 above.

However, Park does not teach a gamut mapping system for remapping the image data.

Murdoch teaches a gamut mapping technique [0036] to provide a method for assigning intensity values for all primary colors.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate gamut mapping technique of Murdoch's into LCD device of Park's because it provides a transformation that preserves color accuracy in the display system. This is an advantage over conventional mapping technique as in Park's.

As to claim 16, Park discloses a system of claim 14 wherein the channel formatter (data transmission paths, Col. 6 line 61-Col. 7 line 9) has formats said output data according to the number of channels available to the display controllers (Fig. 4(3)).

As to claim 17, Park discloses a system of claim 16 wherein the channel formatter adds dummy image data (Fig. 6(D)) to the valid output data set (Fig. 6(R'n)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuk C. Chow whose telephone number is 571 270-1544. The examiner can normally be reached on 8-6 M-TH E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YC
06/22/2007

AMARE MENGISTU
SUPERVISORY PATENT EXAMINER